



Armed Forces College of Medicine AFCM



Pathology of neoplastic skin lesions (1) : Epidermis



INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

1. Classify neoplastic skin disorders into benign, locally aggressive and malignant.
2. Describe pathology of neoplastic skin lesions
3. Compare between squamous cell carcinoma and basal cell carcinoma
4. List examples for adnexal skin tumors.
5. Analyse the given clinical and laboratory findings to reach diagnosis of pathological conditions related to neoplastic skin lesions

Lecture Plan



1. Part 1 (5 min) classification of tumors of epidermis
2. Part 2 (35 min) Tumors of epidermis
3. Part 3 (5 min) Preneoplastic lesions of epidermis
4. Lecture Quiz (5 min)



Tumors of epidermis

- **Benign**

Squamous cell papilloma.

- **Locally malignant**

Basal cell carcinoma

- **Malignant**

Squamous cell carcinoma



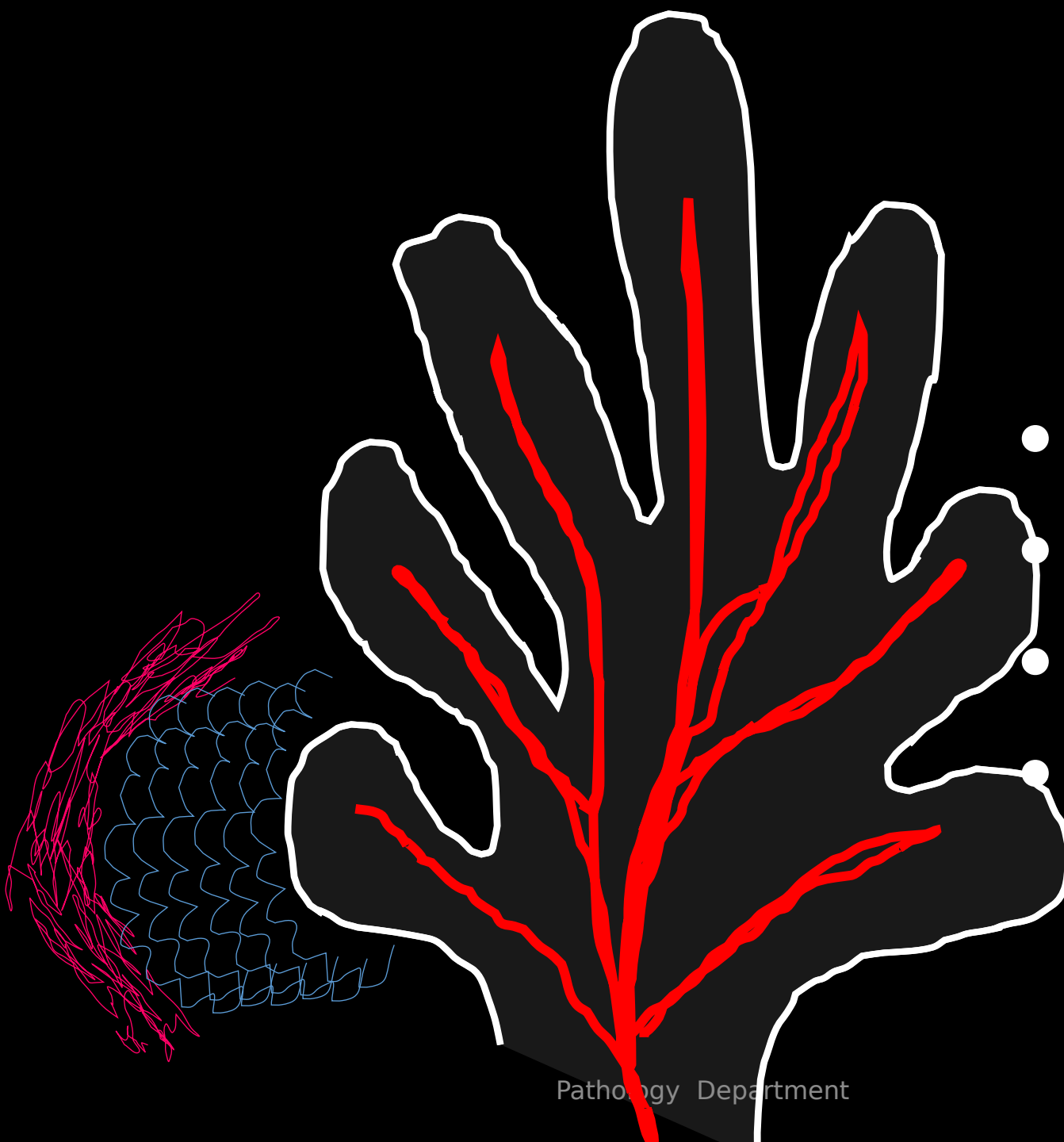


Squamous cell papilloma

What is a papilloma?

Epithelial tumor forming gross or microscopic fingerlike projections





- Branching
Vascularized
Acanthosis
hyperkeratos



Benign skin tumors



Squamous cell papilloma (warts /verrucae)

caused by human papilloma virus (HPV).

- Gross picture:

Verrucae vulgaris (common wart) are exophytic growths which occur anywhere on the skin, mostly on fingers.

- Genital warts with low malignant potential are caused by distinct HPV types (low-risk types, e.g., HPV-6 and HPV-11).
- Cervical squamous cell cancers contain HPV types 16 or 18 in more than 90% of cases



Benign skin tumors



Squamous cell papilloma (warts /verrucae)



<https://nhathuoctrongsinh.com/sui-mao-ga-o-mat-nhung-dau-hieu-nguy-hiem-khong-th-e-bo-qua/>

06/11/2024



<https://step2.medbullets.com/dermatology/120054/cutaneous-warts-verrucae>



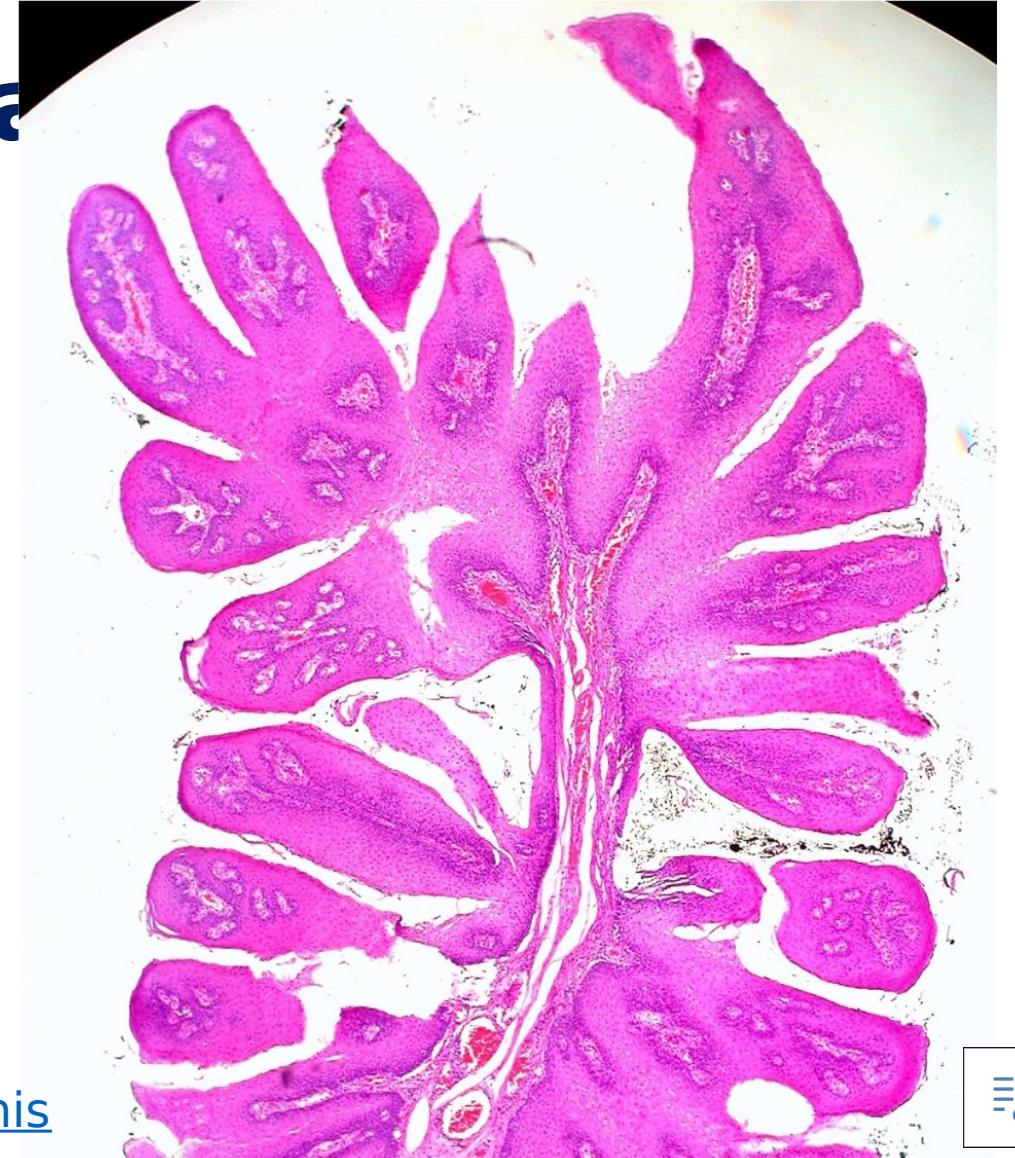
Benign skin tumors



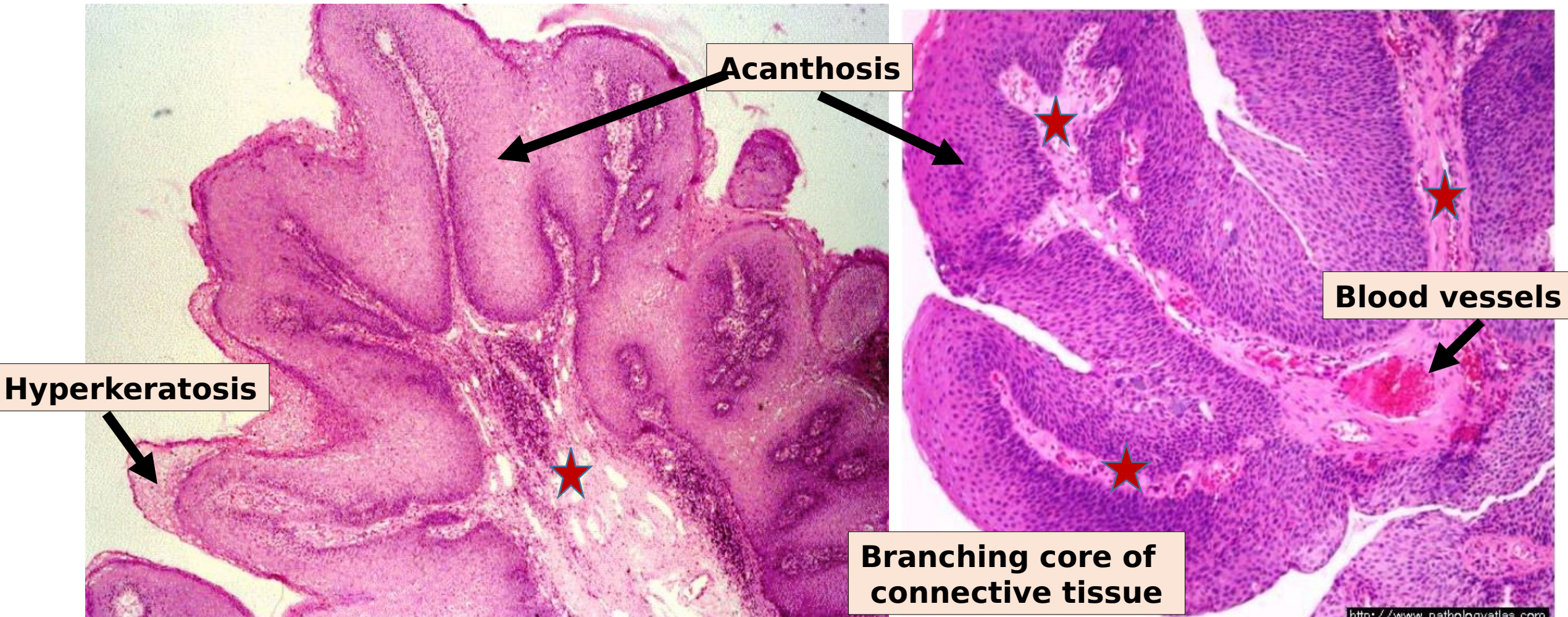
Squamous cell papilloma (warts /verrucae)

Microscopic picture

Branching vascularized connective tissue core covered by thickened keratinized stratified squamous epithelium.



Benign skin tumors



Locally malignant tumors of the epidermis



Basal cell carcinoma (Rodent ulcer)

- Basal cell carcinoma (BCC) is the most common human cancer (1 million cases in the United States annually)
- Locally malignant tumor□ invades directly the surroundings and **rarely metastasize**.
- Sun exposure is a risk factor
- Immunosuppression and defects in DNA repair (e.g., **xeroderma pigmentosum**) increase the incidence.

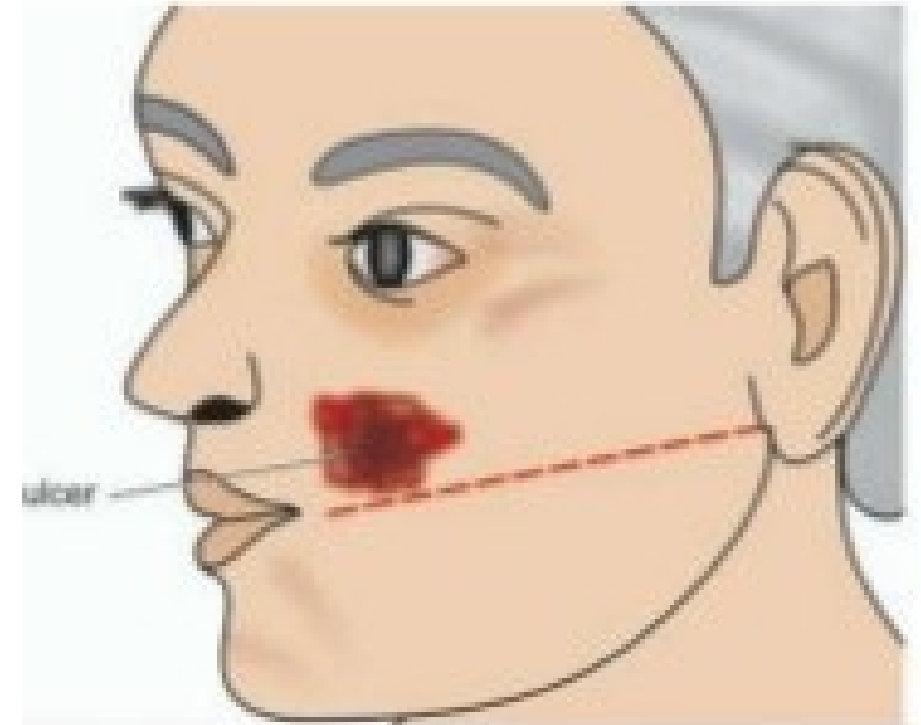


Locally malignant tumors of the epidermis



Basal cell carcinoma

- **Site:**
- It arises commonly the face above an imaginary line drawn between angle of the mouth & ear lobule.



Locally malignant tumors of the epidermis



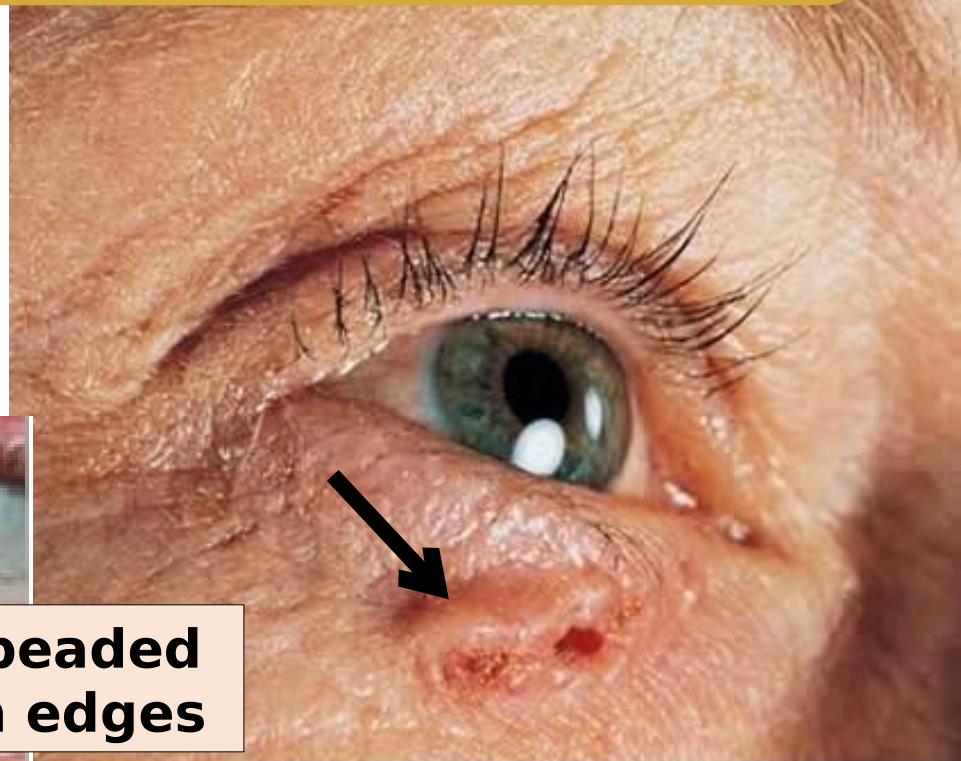
Basal cell carcinoma

• Gross:

It starts as red nodule that ulcerate with **rolled in edges** & **raised beaded margin**



**Raised beaded
rolled in edges**



<https://www.mayoclinic.org/diseases-conditions/basal-cell-carcinoma/symptoms-causes/syc-20354187>



Locally malignant tumors of the epidermis



Basal cell carcinoma

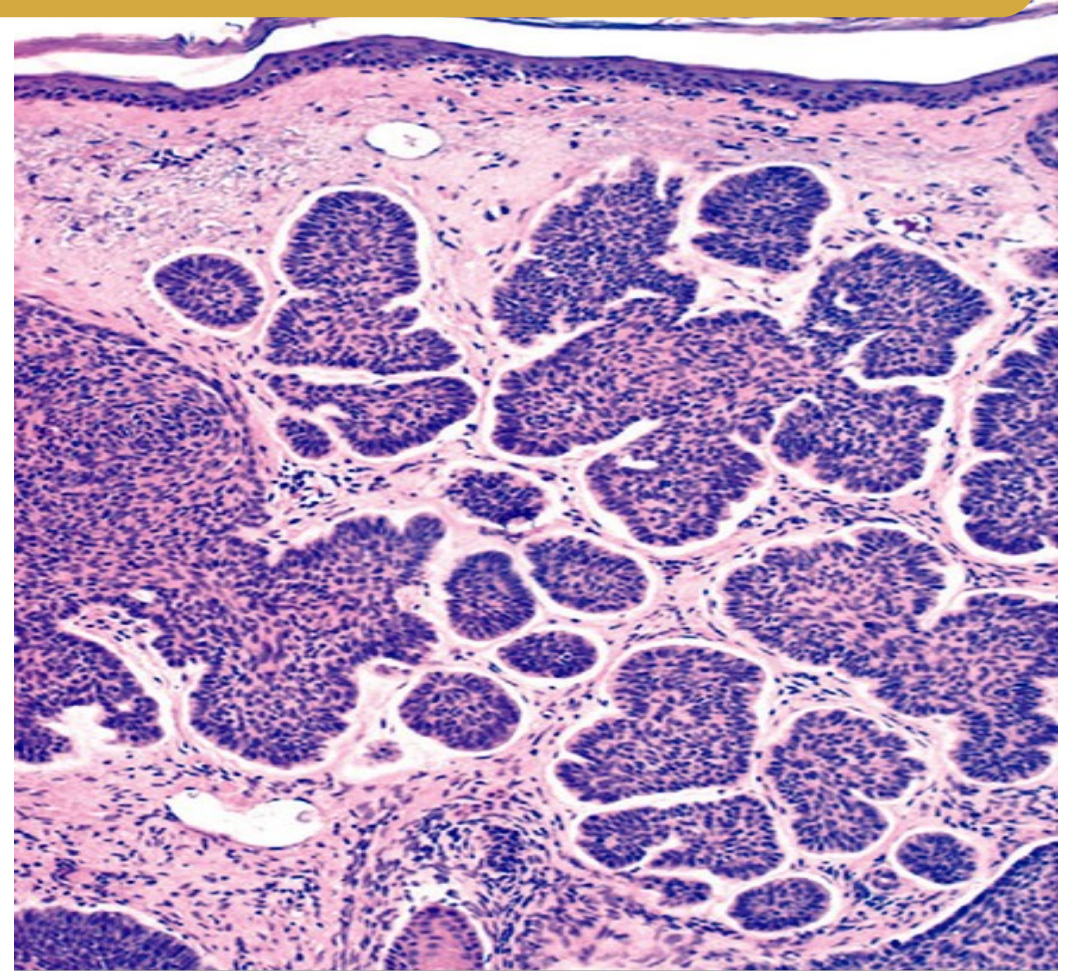
• Microscopic:

Masses of malignant epithelial cells infiltrating the dermis

2- The masses are variable in size and shape.

3- The malignant cells are variable in size and shape with scanty bluish cytoplasm, and large, oval, hyperchromatic nuclei.

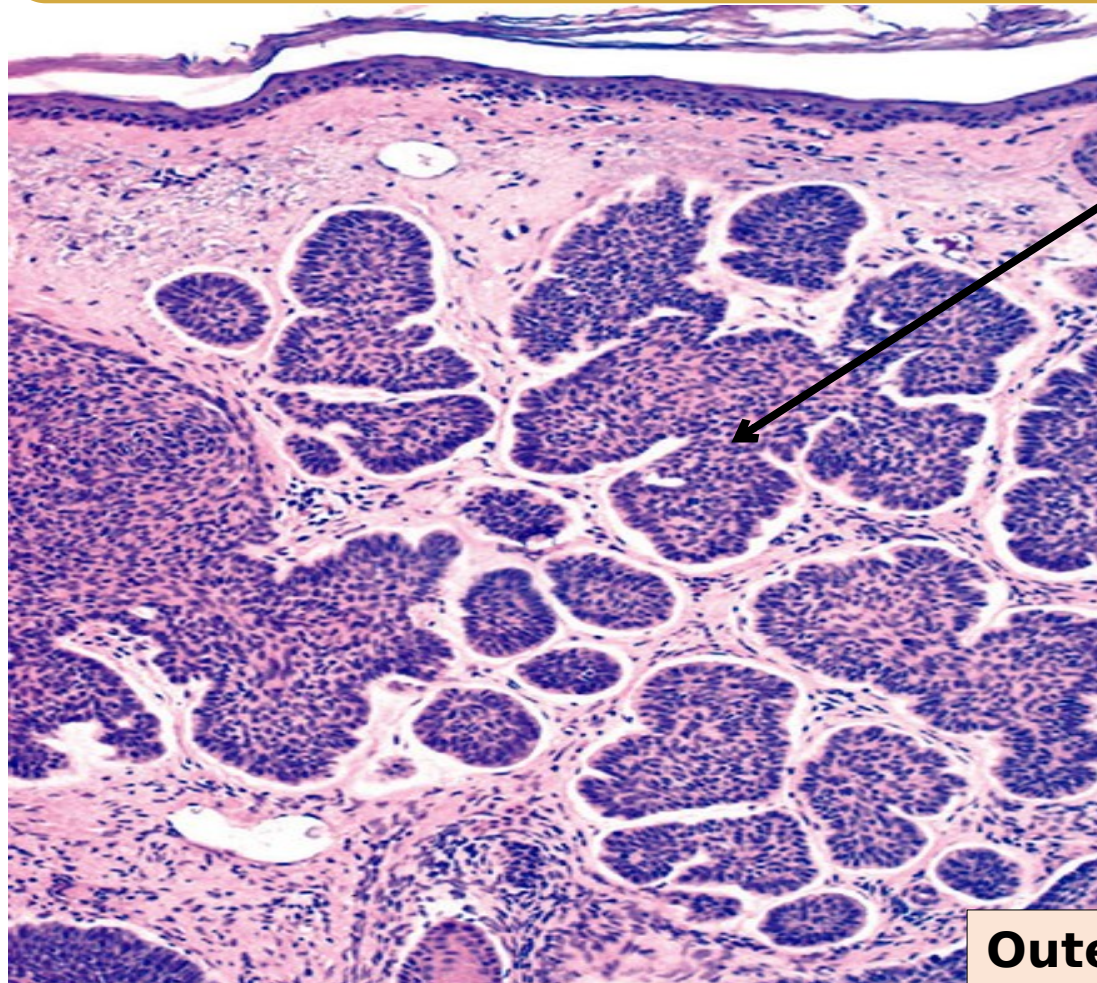
4- The outer cells are columnar and parallel (palisade arrangement). The



From Cotran RS, Kumar V, Collins T: The skin. In Robbins SL, Cotran RS, Kumar V, eds: Pathology basis of disease, ed 6, Philadelphia, 1999, WB

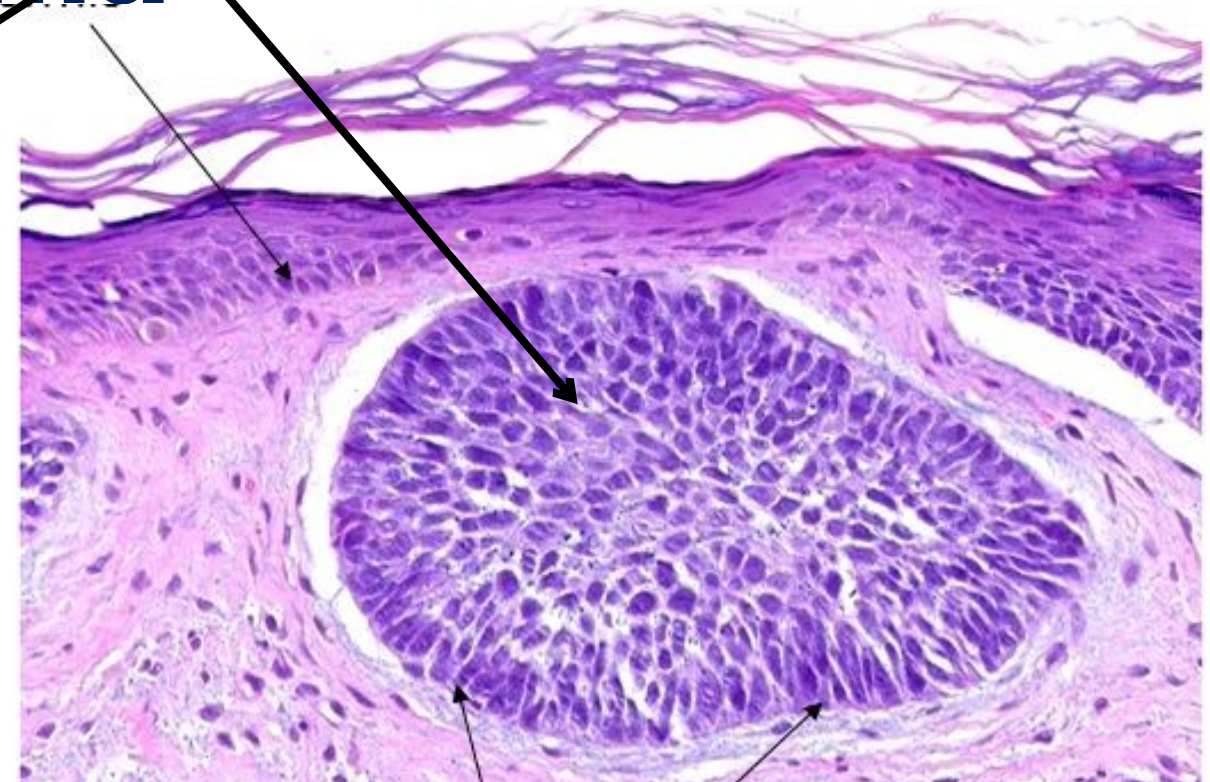


Locally malignant tumors of the epidermis



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Mass of malignant cells



Outer cells are columnar and parallel

Nuclear palisading

From Cotran RS, Kumar V, Collins T: The skin. In Robbins SL, Cotran RS, Kumar V, eds: Pathologic basis of disease, ed 6, Philadelphia, 1999, WB

<https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwjZpcrby57iAhUK6HQanDgcQjhx6BAgBEAM&url=https%3A%2F%2Fslideplayer.com%2F...>



Discuss pathology of basal cell carcinoma



Basal cell carcinoma is:

- A. A tumor of dermis
- B. Locally malignant tumor
- C. Formed microscopically of cell nests
- D. Benign tumor
- E. Preneoplastic skin lesion



Malignant tumors of the epidermis



Squamous cell carcinoma

- Malignant tumor that arises from squamous cells (skin or any other organ lined by squamous cells)
- Squamous cell carcinoma is the second most common **tumor of sun-exposed skin** of older individuals
- More in men than in women

Malignant tumors of the epidermis



Squamous cell carcinoma

Gross:

- Malignant ulcer with raised everted edges and necrotic floor



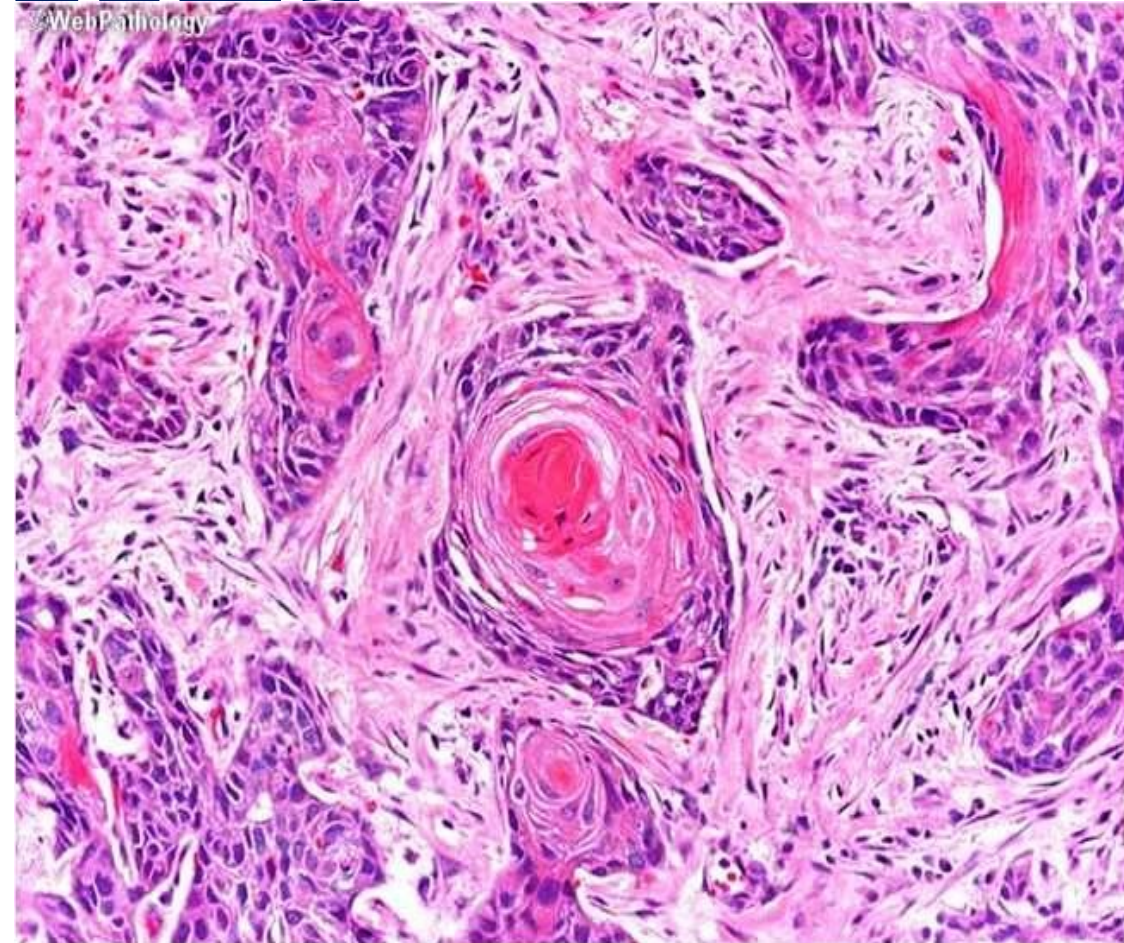
Malignant tumors of the epidermis



Squamous cell carcinoma

Microscopic:

1. Sheets and masses of malignant squamous epithelial cells infiltrating the dermis
2. The tumor masses show central cells with a red stained keratin pearls (cell nest).
3. The malignant cells are variable in size and shape with abundant pink cytoplasm, and large hyperchromatic nuclei showing prominent nucleoli.





Actinic keratosis

- This is a premalignant dysplastic lesion associated with chronic sun exposure, especially in light-skinned individuals;
- Occurs in older individuals



Tumors of the epidermis



	Squamous cell carcinoma	Basal cell carcinoma (rodent ulcer)
Sites	- Skin - Mucous membranes like esophagus , vagina, cervix, larynx & tongue.	Skin commonly the face above an imaginary line drawn between angle of the mouth & ear lobule.
Predisposing factors	- Prolonged exposure to sun. - Squamous metaplasia & leukoplakia	Prolonged exposure to sun.



	Squamous cell carcinoma	Basal cell carcinoma (rodent ulcer)
Gross picture	-- Ulcerative pattern with raised everted edges and necrotic floor	It starts as red nodule that ulcerate with rolled in edges & raised beaded margin
Microscopic picture	Dermis or submucosa is infiltrated by malignant epithelial cells which in well differentiated pattern form "cell nests".	Dermis is infiltrated by islands of basophilic cells. The nuclei at the periphery of cell islands aligned parallel to each other



Adnexal (Appendage) Tumors



Tumors arise from skin adnexa

- Sweat glands
- Sebaceous glands
- Hair follicles



Adnexal (Appendage) Tumors



Benign neoplasms

- **Hair and hair follicle**

- Trichofolliculoma
- Trichoblastoma
- Trichoblastic fibroma
- Trichoadenoma
- Trichilemmoma
- Pilomatricoma/proliferative pilomatricoma

- **Sebaceous glands**

- Sebaceous adenoma
- Sebaceoma/sebaceous epithelioma

- **Apocrine glands**

- Apocrine adenoma



Adnexal (Appendage) Tumors



Malignant neoplasms

- **Hair and hair follicle**

- Trichilemmal carcinoma
- Pilomatrix carcinoma

- **Sebaceous glands**

- Sebaceous carcinoma

- **Apocrine glands**

- Apocrine carcinoma



Compare between basal cell carcinoma and squamous cell carcinoma



True or false

1. Basal cell carcinoma metastasize to blood

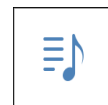
(False)

2. Microscopic picture of squamous cell carcinoma is formed of cell nests infiltrated the dermis

(True)

- **Squamous cell papilloma** : is caused by human papilloma virus (HPV)
- **Basal cell carcinoma** : is a locally malignant tumor
- **Squamous cell carcinoma** : Malignant tumor that arises from squamous cells (skin or any other organ lined by squamous cells)
- **Actinic keratosis**: is a premalignant dysplastic lesion





SUGGESTED TEXTBOOKS



1. Robbins basic pathology, ninth Edition
2. Kaplan step 1 pathology lecture notes 2017 (P.78-98)